



# Montana Department of Revenue



**Mike Kadas**  
Director

**Steve Bullock**  
Governor

To: Mike Kadas, Director

From: Dan Dodds, Senior Economist

Date: February 1, 2013

Subject: SB 407 and Employment

The attached document reports the results of work I did over the last interim looking at whether SB 407, passed by the 2003 Legislature, increased employment in Montana. I used income tax returns to look for changes in taxpayer behavior from before SB 407 went into effect in 2005 to after it went into effect. I used income tax returns and annual withholding returns to compare the post-2005 behavior of high-income individuals, whose taxes were significantly reduced by SB 407, to the post-2005 behavior of other individuals and C-corporations, whose taxes were not significantly affected by SB 407.

Income tax returns are available back to 1998, which makes it possible to compare some pre- and post-SB 407 behavior for individuals. Payroll data from annual withholding returns is only available back to 2006. This makes it impossible to compare pre- and post-SB 407 employment and payroll trends for individual employers.

The evidence contradicts the idea that SB 407 increased labor supply. The evidence is ambiguous on the question of whether SB 407 increased labor demand through increased self-financing of business expansion or increased entrepreneurship. The evidence is consistent with some increase in labor demand from SB 407 making Montana more attractive for unincorporated businesses. However, the lack of pre-2005 payroll data from withholding returns limits what can be said on this question.

# **State Income Taxes and Employment Growth Results of A Natural Experiment in Montana**

## **1. Introduction and Summary**

It is often argued in the political arena that cutting taxes will stimulate the economy and increase employment. This paper uses income tax and withholding data to examine whether an income tax cut in Montana increased employment in the state. This legislation, SB 407, was enacted in 2003 and went into effect in 2005. It was targeted at high-income taxpayers, and produced minimal average tax reductions for middle and low income taxpayers.

A tax cut can increase employment in a state by increasing the supply of labor, increasing the demand for labor, or inducing firms to locate in the state rather than elsewhere. SB 407 appears to have reduced rather than increased labor supply by high income households. Evidence for a tax-cut-induced increase in labor demand is contradictory and at best inconclusive. The evidence is consistent with an increase in firms locating in Montana, but the data is too limited to draw firm conclusions.

Section 2 presents mechanisms which economic theory predicts might lead from tax cuts to increased employment. Section 3 examines how information from income tax and withholding returns might be used to test whether these mechanisms resulted in increased employment in Montana after SB 407 went into effect. Section 4 examines general economic conditions in Montana before and after SB 407 went into effect to show the background against which any effects of SB 407 might appear. Section 5 presents results, and Section 6 draws conclusions. There are two appendices. One presents more detail on the Montana economy and the other explains how withholding returns were corrected and classified.

## **2. Mechanisms by which Income Tax can Affect Employment**

There are three general ways that the income tax cut in SB 407 could have increased employment in Montana. It could have increased the demand for labor, i.e. the number of people that companies want to employ at any set of wages. It could have increased the supply of labor, i.e. the number of people who want to work at any set of wages. It also could have affected the location of employment, causing employers to locate jobs in Montana rather than another state. This section examines five specific mechanisms by which SB 407 might have been expected to affect the supply of labor in Montana, the demand for labor in Montana, or the location of employment.

### *Labor Supply Effect*

Economic theory predicts that an income tax cut will have two opposite effects on the supply of labor. It increases the payoff for an hour's work, making people want to work more, but it also increases the after-tax income from any given amount of work, which means people can afford more of everything, including leisure time. Whether a tax cut increases or decreases the supply of labor depends on which of these effects is stronger. Many studies have estimated the responsiveness of labor supply to changes in after-tax

wages. The general consensus is that labor supply of people who are their household's primary income earner has a small positive response to increased net wages but that secondary earners increase both labor force participation and hours worked.<sup>1</sup> One possible way that SB 407 may have affected employment is by increasing the labor supply of second earners in high income households. This is tested below using information from income tax returns.

### *Savings Effect*

An increase in saving can, over time, lead to an increase in labor demand. A higher saving rate will lead to more investment in plant, equipment, and knowledge. With more plant, equipment, and knowledge per worker, workers will be more productive, and companies will find it profitable to hire more workers and pay more to attract them. If higher wages cause more people to enter the labor force, there will be more employment as well as higher wages.

If Montana businesses are raising funds on national or international capital markets, an increase in saving by Montanans will have a negligible effect on investment in the state because Montanan's savings are a negligible fraction of total funds available to finance business investment. To the extent that Montana businesses are limited in their ability to raise funds on national or international capital markets, an increase in Montanan's saving rate may lead to an increase in investment by Montana businesses.

The income tax can affect saving by reducing the after-tax rate of return on invested funds. Most theoretical analyses of the macroeconomic effects of an income tax use models of economic growth that assume that an increase in the after-tax rate of return will produce a large increase in the savings rate. However, decades of empirical work has almost always found that the response of the savings rate to the after-tax rate of return is zero or very small.<sup>2</sup>

The utility maximization theory of individual behavior, which dominated twentieth-century economics, allows individuals to respond to an increase in their after-tax rate of return by saving more, saving less, or by leaving their saving unchanged. This is because an increase in the after-tax rate of return has two effects: It makes it cheaper to consume in the future rather than today, i.e. to save, but it also makes people with accumulated savings richer and therefore more willing to spend today rather than saving for the future. If the first effect is stronger, people will save more when the after-tax rate of return increases. If the second effect is stronger, people will save less when the after-tax rate of

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<sup>1</sup> See, for example, Bernard Salanie, *The Economics of Taxation*, Cambridge, The MIT Press, 2003, pp. 38-44, Chetty; R., A. Guren, D. Manoli, and A. Weber, *Are Micro and Macro Labor Supply Elasticities Consistent? A Review of Evidence on the Intensive and Extensive Margins*, *American Economic Review* 101, (2011) 471-75; Bargain, Olivier, Kristian Orsini and Andreas Peichl, *Labor Supply Elasticities in Europe and the US*, *Forschungsinstitut zur Zukunft der Arbeit Discussion Paper 5820*, 2011; Michiel Evers, Ruud de Mooij and Daniel van Vuuren, *What Explains the Variation in Estimates of Labor Supply Elasticities?* Tinbergen Institute Discussion Paper TI 2006-017/3, 2006.

<sup>2</sup> For a recent survey of the literature, see Douglas Bernheim, *Taxation and Saving*, in *Handbook of Public Economics* vol 3, Alan Auerbach and Martin Feldstein eds., North-Holland, 2002.

return increases. If the two effects exactly offset each other, an increase in the after-tax rate of return will not affect saving.

Modern behavioral economics research has found that most people are unable to save as much as they want to or think they should. It has focused on factors that determine whether people save, and has found that people who do save generally have locked themselves into an inflexible arrangement such as having a fixed percent of each paycheck deposited in a retirement account or having income tax over-withheld to get a refund. While the utility maximization theory is consistent with the empirical finding that the response of saving to the after-tax rate of return is zero or very small, behavioral economics provides explanations for this finding.<sup>3</sup>

It is not clear that SB 407 can be expected to have affected the overall savings rate in Montana or that an increase in the Montana savings rate can be expected to affect investment and employment in Montana. It is clear that if there is an effect, it will be a long-run effect that can only be seen by comparing growth over fairly long periods before and after SB 407 went into effect or comparing growth in Montana to growth in other states. Therefore, no attempt has been made here to identify an employment effect through an overall increase in saving.

On the other hand, if SB 407 increased saving by high-income Montanans, this may have provided additional self-financing for businesses these high-income individuals own. Additional self-financing may have led to more investment and demand for more labor. Annual withholding returns provide information that can be used to examine this possibility.

#### *Entrepreneurial Activity Effect*

In the political arena, it is often claimed that lower income tax rates will increase entrepreneurial activity and that entrepreneurs create jobs, so that lower income tax rates will increase employment. The economic literature on taxes and entrepreneurship paints a more nuanced picture.<sup>4</sup>

Potential entrepreneurs face two choices relating to how they spend their time. One is the choice between spending time working or in other ways, such as spending time with friends and family or sleeping. The other is whether to spend working time as someone else's employee or as an entrepreneur.

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<sup>3</sup> See, for example, Shane Frederick, George Loewenstein, and ted O'Donoghue, *time Discounting and Time Preference: A Critical Review* and Ted O'Donoghue and Matthew Rabin, *Doing It Now or Later*, in Colin Camerer, George Loewenstein, and Matthew Rabin, *Advances in Behavioral Economics*, New York, Russel Sage Foundation and Princeton University Press, 2004.

<sup>4</sup> See, for example Julie Berry Cullen and Roger Gordon, *Taxes and Entrepreneurial Activity: Theory and Evidence for the U.S.* National Bureau of Economic Research Working Paper 9015, 2002, Vesa Kannianen, Seppo Kari, and Jouko Yla-Liedenpohja, *Nordic Dual Income Taxation of Entrepreneurs*, VATT Discussion Paper 415, Government Institute for Economic Research, Helsinki 2007, and Magnus Henrekson, *Entrepreneurship and Institutions*, Research Institute of Industrial Economics Working Paper 707, Stockholm 2007.

Taxes affect the choice between free time and working as an entrepreneur in exactly the same ways that taxes affect the choice between free time and working as an employee outlined above. Lower income tax rates are likely to produce little or no additional time spent in entrepreneurial activity rather than as free time by the primary income earner in a household but may produce a significant increase for secondary income earners.

Taxes can affect the choice between working as an employee and being an entrepreneur in at least four different ways.

People who are successful as entrepreneurs tend to have higher incomes than they would if they worked for someone else. Higher income tax rates and a more progressive rate structure reduce the after-tax income difference from entrepreneurial activity rather than working as an employee.

On the other hand, small business owners have more opportunities to under-report income than employees, and IRS compliance research indicates that less than half of small business income is reported.<sup>5</sup> The effective tax rate is likely to be lower for someone who works as an entrepreneur and under-reports income than it would be for the same person as an employee. This may mean that higher statutory tax rates make entrepreneurship relatively more attractive for potential entrepreneurs who expect to evade taxes.

Income from entrepreneurial activity tends to be more variable and more uncertain than income from working as an employee, and entrepreneurs often have years when their business produces a loss rather than income. With an income tax, after tax income is less variable than pre-tax income. This is particularly true if business losses can be written off against other income or carried forward or back to offset income in other years. An income tax shifts part of the risk of entrepreneurial activity to other taxpayers. This risk shifting can be smaller with a progressive rate structure because business losses in bad years can end up offsetting income that is taxed at a lower rate than applies to business income in good years.

Entrepreneurs have more opportunities than workers to structure when and how they receive income. If the tax code provides preferential treatment for certain types of income, such as capital gains, or provides business owners with opportunities to deduct expenses that are not available to employees this may provide an additional incentive for entrepreneurial activity.

SB 407 reduced the effective marginal tax rate for high income taxpayers and made the rate structure much flatter. The top rate under the old law started at \$80,300 for 2004, and the top rate under SB 407 started at \$13,900 for 2005. This cutting and flattening of rates may have provided an inducement for additional entrepreneurial activity. SB 407

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<sup>5</sup> Theodore Black, Kim Bloomquist, Edward Emblom, Andrew Johns, Alan Plumley\*and Esmeralda Stuk, Federal Tax Compliance Research: Tax Year 2006 Tax Gap Estimation, Internal Revenue Service, March 2012.

also provided preferential treatment for capital gains income in the form a tax credit equal to 1% of capital gains income for 2005 and 2006 and 2% for later years.

Entrepreneurs identify and pursue new business opportunities. If they are successful, they often start companies that grow and hire more workers. This may or may not produce more jobs for the economy as a whole.

New businesses often provide new products or use new processes to provide existing products. New firms producing new products may simply displace old firms producing old products. New processes may make workers more productive, leading to higher wages and more employment, or they may lower the skill levels workers need, leading to lower wages and less employment.

While the effect of an increase in entrepreneurial activity on total employment is unpredictable, it is likely that employment gains and losses will be in different places. New jobs at new businesses in Montana may be partly, completely, or more than completely offset by job losses at old businesses, but if those old businesses are in other states, there will be a net increase in employment in Montana.

Information from income tax returns can be used to look for evidence of additional entrepreneurial activity, particularly by second earners, and annual withholding returns can be used to look for changes in employment by new and smaller firms.

#### *Keynesian Stimulus Effect*

Unexpected events and new information can cause people to revise their expectations about the level and riskiness of their current and future incomes. When people revise their expectation downward they generally reduce spending and try to save more. When people revise their expectations upward, they generally spend more. When most people revise their expectations downward at the same time, their lower spending can cause others to further revise their expectations downward, and the cumulative effect is a recession. In a recession, events that cause people to spend more, either because they revise their expectations upward or because they have more disposable income, can slow or reverse the downward spiral. One thing that can give people more disposable income and stimulate the economy in a recession is a tax cut.

When SB 407 went into effect in 2005, the state economy was growing rapidly. Any stimulus from SB 407 would have come on top of the existing expansion. In addition, SB 407 increased several other taxes to offset the revenue loss from the income tax cut. In its first years, SB 407 redistributed the tax burden rather than reducing it. Therefore, it is unlikely that SB 407 had a significant short-run stimulus effect.

#### *Inter-Jurisdiction Tax Competition Effect*

When businesses are deciding where to locate, they consider many factors. The most important are directly related to the business's production processes. These include access to raw materials, a supply of workers with appropriate skills, availability and cost of other inputs, and access to customers. Business location decisions also are affected by

the supply of public services and the taxes that pay for them. SB 407 changed Montana's mix of taxes but did not materially affect the supply of public services. SB 407 cut income taxes, especially for high income individuals, and increased taxes on cigarettes and tobacco products. It also instituted a rental car tax and increased lodging taxes, but left both these taxes lower than in most states. SB 407 did not change Montana's corporate tax.

This change in Montana's tax structure would have made Montana more attractive to businesses organized as sole-proprietorships or as pass-through entities without changing its relative attractiveness to businesses organized as a C-corporation. It also would have made Montana somewhat less attractive to businesses that rely on employees travelling.

Withholding returns can be used to look for an inter-jurisdiction tax competition effect on labor demand by comparing the growth of withholding by incorporated and unincorporated businesses.

### **3. How Possible Employment Effects Would Show Up in the Data**

The department has two data sets that can be used to make inferences about possible employment effects of SB 407 – individual income tax returns and employers' annual withholding returns.

A complete database of income tax returns is available for the years 1998 through 2010. It includes almost all information from the main return and supporting schedules for state-specific additions to and subtractions from federal adjusted gross income, itemized deductions, and credits. It does not include federal supporting schedules used to calculate income line items.

Montana has a single rate schedule for all taxpayers. Married couples are allowed to choose between filing separate returns and a joint return, and are not required to file the same as they do for their federal return. With a single rate schedule, most two-income couples have lower tax liability if they file separate returns.<sup>6</sup> The Montana tax return allows a married couple to file separate returns on a single form, with two columns for each line item. Column A is for single taxpayers, married taxpayers filing a joint return, or one spouse when a couple file separate returns on the same form. Column B is for the second spouse when a couple file separate returns on the same form.

Because of these features, Montana tax returns indicate the types and amounts of income taxpayers earn, and for married couples, they indicate whether the return comes from a one-income or two-income family.

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<sup>6</sup> A couple where one spouse has adjusted gross income that is less than the sum of an exemption and the standard deduction may have lower tax liability filing a joint return. Thus, whenever terms like 'single-income married couple' are used in this paper, they include some couples where the second spouse has some, but very low income.

Employers submit an annual return showing annual payroll and tax withheld. These returns were classified by type of payer and ownership, and can be used to compare payroll growth for different types of firms whose owners were affected differently by SB 407.<sup>7</sup>

### *Labor Supply Effect*

If SB407 increased the supply of labor by inducing a second spouse to work in more households, this should show up as an increase in the proportion of tax returns from married couples reporting wage and salary income in column B. Since the tax cut was significant only for higher-income households, it should be possible to disentangle any effect of SB 407 from the effects of other events at the same time by comparing changes in the proportion of column B wage-earners in higher income households with changes in the proportion in the rest of the population. If the proportion of Column B wage-earners increased in the whole population, the increase should be larger among higher income couples. If the proportion of Column B wage-earners decreased in the whole population, the decrease should be smaller among higher income couples.

### *Saving Effect*

If SB 407 increased saving by high income households and if that additional saving was used to self-finance expansion of businesses these households own, the payroll growth rate at firms with a high-income owner should have increased more, or decreased less, than the payroll growth rate at other firms. With no payroll data from before SB 407 went into effect, it is impossible to do a before-and-after comparison of growth rates. What is possible is a comparison of the payroll growth rate for firms with high-income owners with other firms for 2006 through 2010 and an analysis of the proportion of payroll and payroll growth at firms with high income owners.

This self-financing effect would apply only to firms whose owners already have high incomes. Firms were counted as having a high income owner if they had one or more owners with income of \$250,000 or more in at least one year in 2003 through 2005.

If payroll growth is much higher at firms with high-income owners, that will be suggestive of a tax-cut-induced increase in self-financed growth for these firms. If payroll growth is much lower at firms with high-income owners, that will suggest that the tax cut caused little or no additional payroll growth at these firms. In either case, the evidence will not be conclusive because there is no before-and-after comparison.

Firms that might have had an increase in self-financing will be primarily pass-through entities or sole-proprietor businesses that are treated as disregarded entities for income tax purposes, rather than C-corporations.<sup>8</sup> The proportion of payroll and payroll growth

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<sup>7</sup> The classification process is described in Appendix II.

<sup>8</sup> Pass-through entities include partnerships and S-corporations. For federal and state income tax, they are treated as separate entities, but there is no tax at the entity level. In Montana, pass-through entities are required to file an annual information return showing the calculation of the entity's income or loss and its allocation to the owners. Disregarded entities are often sole-proprietor businesses and are not

will give a fairly good picture of the importance to the state economy of any increase in self-financing of business with high-income owners. If firms with a high-income owner account for a large proportion of total payroll and payroll growth, then even a small increase in self-financing at these firms may have a significant effect on total state employment and payroll. On the other hand, if these firms account for a very small proportion of total payroll and payroll growth, even a large increase in self-financing at these firms would not significantly affect state employment and payroll.

Firms can be organized as C-corporation, pass-through entities, or sole-proprietorships. In most cases, organization as a C-corporation implies a greater separation of the business from the owner's personal finances. A C-corporation can finance expansion by borrowing, by selling new shares or by retaining earnings. These mechanisms can be used to raise money from existing owners, but the first two generally work by raising funds in capital markets, and retaining earnings essentially takes an equal capital contribution from the owner of each share. The pass-through entity and sole-proprietor business structures generally provide more direct ways for individual owners to contribute capital to or withdraw capital from the business. Thus, if there was an increase in self-financing of businesses with high-income owners it is more likely to be seen in pass-through entities and sole proprietor businesses than in C-corporations.

To the limited extent the data can address the question, evidence for employment growth from an increase in self-financing at firms with high-income owners can be looked for by comparing payroll growth at pass-through entities and sole-proprietor businesses with a high income owner with payroll growth at other firms.

### *Entrepreneurial Activity Effect*

In its broadest sense, entrepreneurial activity is just the organization and running of a business. The term often is used in a narrower sense, implying innovation, actively seeking out new opportunities, or starting a new business. In either sense, entrepreneurship can be found in any type of business organization. However, in both senses it is often thought of in terms of smaller, newer, and unincorporated businesses. While managers of a corporation may also be shareholders, most shareholders are not managers. In an unincorporated business, ownership and management are more likely to be combined in the same people, and someone who has income from an unincorporated business is more likely to be an active participant in the business than someone who receives dividends from a corporation.

Thus, one place to look for an increase in entrepreneurial activity is in the proportion of income tax returns reporting income (or losses) on Schedule C, for income from a sole

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treated as entities separate from their owners for income tax purposes. A disregarded entity's income or loss is calculated on Schedule C, E, or F of the owner's individual tax return. While Schedule F is for sole-proprietor farm businesses, most full-time agricultural enterprises have another business structure, and most taxpayers reporting income or loss on Schedule F receive most of their income from other sources. Most taxpayers filing Schedule F are best described as hobby farmers. Thus, changes in the proportion of taxpayers filing a Schedule F are not considered here.

proprietorship, or on Schedule E, for income from a pass-through entity.<sup>9</sup> Since income tax returns are available from 1998 through 2010, it is possible to compare the proportions with Schedule C and E income or loss before and after the implementation of SB 407.

Successful entrepreneurs end up with high incomes, but entrepreneurs starting a new venture may have lower incomes or even have business losses. Changes in the proportion of returns at different income levels with income or losses on Schedules C and E may shed some light on changes in entrepreneurship, but there is no strong a-priori notion of what form that evidence might take. Some studies of entrepreneurship have suggested using business losses as a measure of risk-taking entrepreneurial activity. However, a recession also increases the proportion of business losses. Since the pre-and post SB 407 data both cover more than a complete business cycle, differences in observed entrepreneurial activity between the two periods should not be due to business cycle effects.

While entrepreneurship can occur in any type of business, new businesses are most likely to be entrepreneurial. Thus, an increase over time in payroll growth at new businesses would be evidence for an entrepreneurial effect from SB 407. However, since there is no pre-SB 407 payroll data, it is impossible to be confident that such an increase is not due to other factors.

#### *Inter-jurisdictional Competition*

SB 407 reduced taxes for high-income individuals but not for C-corporations. An increase in the payroll growth rate for pass-through entities and sole-proprietor businesses over the payroll growth rate for C-corporations would be evidence that SB 407 made Montana more competitive for businesses deciding where to locate. Since payroll data is not available from before SB 407 went into effect, it is impossible to do a before-and-after comparison. Differences in payroll growth rates between unincorporated businesses and C-corporations will only be suggestive, not conclusive.

#### *Summary of Hypothesized Effects*

If SB 407 had effects that tended to increase employment in Montana, they would show up in the data in one or more of the following ways:

- An increase in the proportion of income tax returns from higher-income married couples reporting wage and salary income for the second spouse (labor supply effect)
- An increase in the proportion of income tax returns with income or losses on Schedules C and E both for the total population (entrepreneurial effect) and for high-income taxpayers (self-financing effect)

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<sup>9</sup> Schedule E is also used to report income from royalties and rental businesses. Most of the income reported on Schedule E is from pass-through entities, so that an increase in the proportion of the population owning a pass-through entity will increase the proportion filing a Schedule E. However, an increase in the proportion filing a Schedule E could also come from an increase in the proportion with other types of income reported on Schedule E.

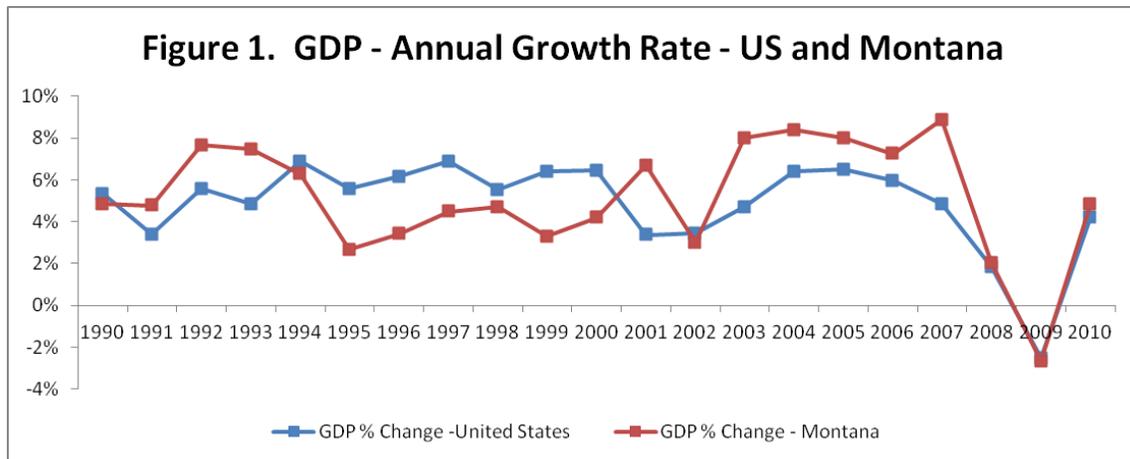
- Faster growth of payroll for pass-through entities and sole-proprietor businesses with at least one high-income owner than for those with no high-income owner (self-financing effect)
- Faster payroll growth for new firms than for established firms (entrepreneurial effect)
- Faster payroll growth for pass-through entities and sole-proprietor businesses than for corporations (inter-jurisdictional competition effect)

#### 4. General Economic Conditions and Their Impact on the Data

Employment is affected by general economic conditions. It falls during a recession and increases during a recovery. Over the long term, it grows as the economy grows.

Identifying the effects of public policy on employment requires identifying changes in employment that are due to other factors so that they are not mistakenly attributed to the policy change or allowed to mask the effects of the policy change. This section examines general economic conditions in Montana and nationwide that affected Montana employment and attempts to identify employment changes that cannot be attributed to SB 407, either because they are due to other factors or because of their timing.

Figure 1 shows annual growth rates of gross domestic product for Montana and the United States for the period 1990 through 2010.



In the early 1990s, the Montana economy generally was growing faster than the national economy. From 1994 to 2002, Montana grew slower than the national economy all but one year. In 2001, as the national economy slowed and went into a recession, the Montana economy had a one-year surge. However, in 2002, as the national economy stayed in recession, Montana joined it.

In 2003, as the national economy began to recover, growth again surged in Montana and stayed above the national rate of growth until both the national and state economies went into recession in 2008.

Figure 2 shows annual employment growth rates for the U.S. and Montana for the same periods. It shows essentially the same pattern as Figure 1 – employment growth was faster in Montana than in the U.S. as a whole in the early 1990s and since 2001 and was generally slower from 1995 through 2000. Montana had a much smaller slowdown of employment growth than the national economy in the 2001 - 2002 recession, but matched the national slowdown in the 2008 - 2009 recession.

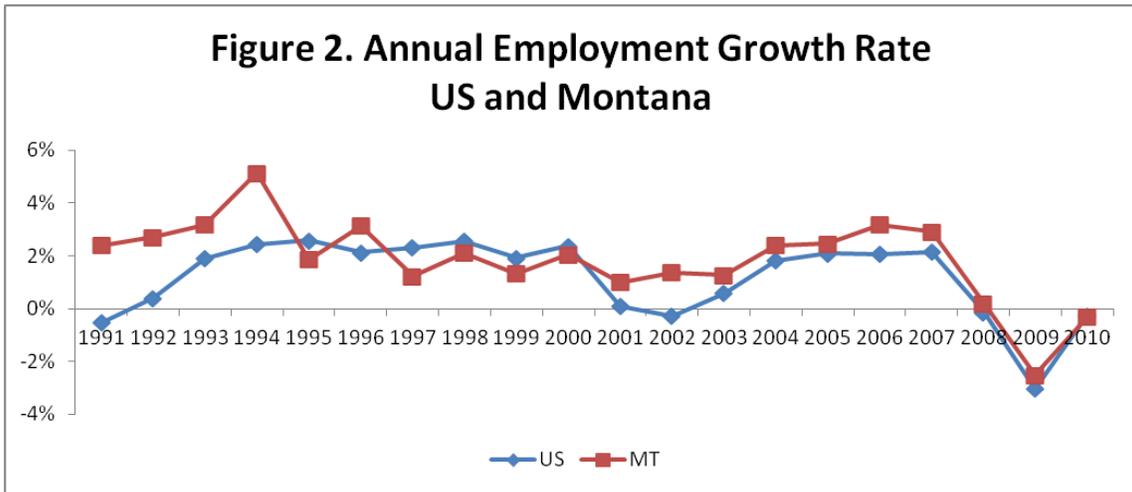
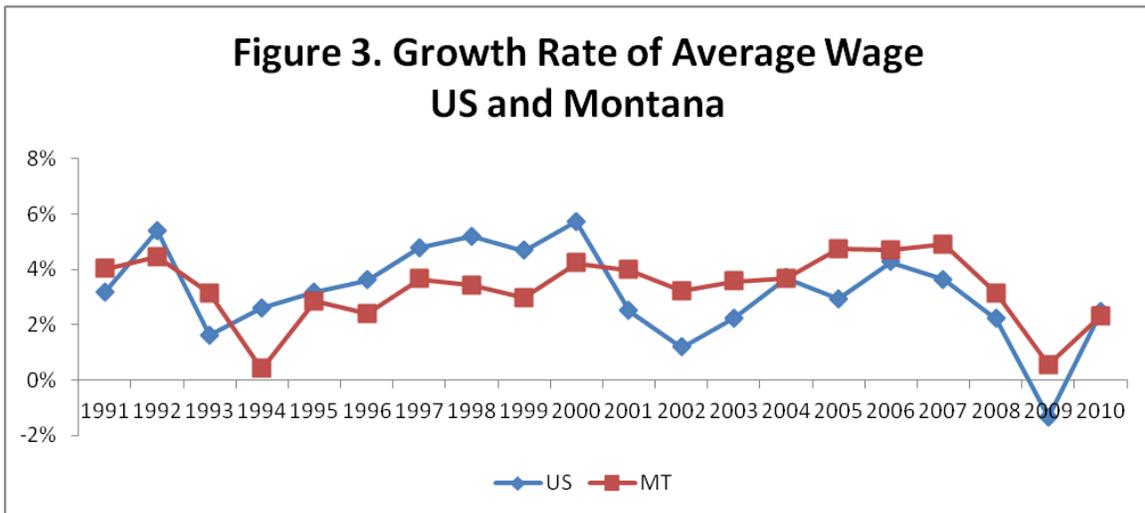
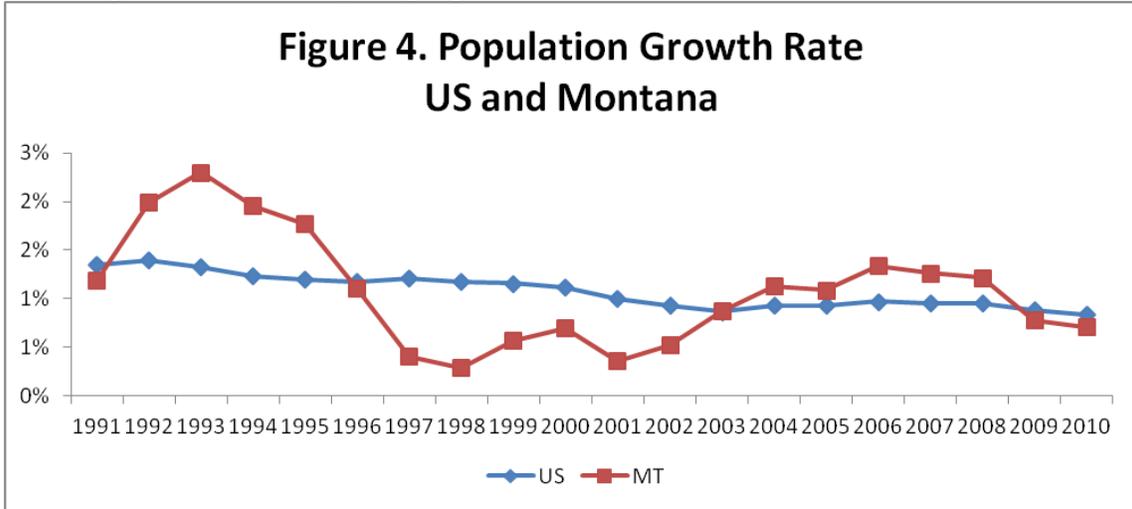


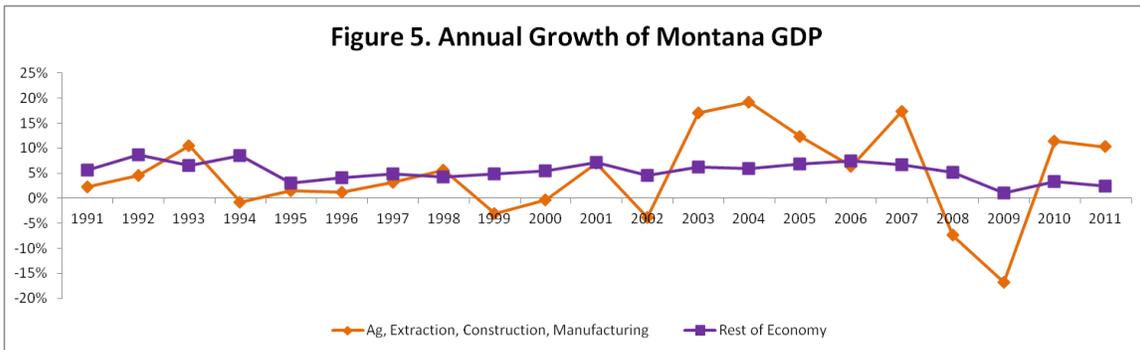
Figure 3 shows annual growth rates for average wages in Montana and the U.S. In general, wage growth has been steadier in Montana than in the nation as a whole. This is because labor market imbalances in Montana tend to be adjusted through migration rather than wage movements. Montana has a relatively small population with most of the population in relatively small cities. When local employment opportunities are limited, people tend to look for work in the larger labor markets in other states, particularly on the west coast. When employment opportunities in Montana are good, people tend to move in the other direction.



This is shown in Figure 4, which shows population growth rates for Montana and the US. When the Montana economy has grown faster than the U.S. economy, Montana’s population has grown faster than the national population, as people moved to the state. When Montana’s economy has grown slower than the national economy, its population has also grown more slowly, as people moved out of the state.



When SB 407 went into effect, Montana was two years into a period of rapid economic growth. This surge in growth was concentrated in four sectors of the economy, agriculture, mineral extraction, construction, and manufacturing. Figure 5 shows annual growth for these four sectors combined and for the rest of the economy. Graphs for individual sectors are in Appendix I.



Montana went into recession in 2008, along with the national economy, and the slowdown was concentrated in the same sectors that had produced faster growth in the previous five years. The speedup in the Montana economy beginning in 2003 occurred before SB 407 went into effect and was driven primarily by factors unaffected by Montana taxes – higher prices for agricultural commodities, higher oil prices, and the nationwide housing bubble.

## 5. Results

### *Income Tax Returns – Labor Supply Effect*

For each year from 1998 through 2010, tax returns were ranked by adjusted gross income reported for Column A, and then, for each decile of Column A's adjusted gross income, the number of married couples with and without wage and salary income in Column B was counted. Table 1 shows the proportion of married couples reporting wage and salary income in Column A, for each year and for the periods before and after SB 407 went into effect at the beginning of 2005.

**Table 1**  
**Proportion of Married Couples with Wage and Salary Income in Column B**

Year	Decile of Column A Adjusted Gross Income									
	1	2	3	4	5	6	7	8	9	10
1998	6.9%	23.5%	26.6%	28.7%	34.7%	41.5%	51.6%	54.3%	52.0%	42.4%
1999	8.4%	24.4%	27.9%	30.2%	35.7%	43.6%	52.8%	55.4%	53.4%	43.9%
2000	9.2%	25.5%	29.1%	30.6%	36.9%	44.5%	54.8%	56.3%	54.1%	44.1%
2001	8.7%	24.8%	28.7%	30.7%	37.0%	44.2%	54.6%	56.2%	54.5%	44.3%
2002	8.9%	24.1%	28.1%	30.1%	35.6%	43.5%	53.2%	55.7%	55.2%	44.7%
2003	9.7%	24.0%	28.1%	31.2%	35.9%	43.6%	53.2%	55.1%	54.9%	45.2%
2004	10.1%	24.7%	29.6%	31.1%	35.8%	45.6%	54.0%	55.7%	55.1%	44.9%
2005	11.4%	25.6%	28.3%	31.6%	37.0%	48.1%	54.0%	54.6%	52.6%	38.1%
2006	11.6%	23.9%	27.9%	31.5%	38.4%	49.0%	53.1%	54.6%	50.9%	36.7%
2007	10.3%	24.5%	29.0%	32.0%	38.6%	49.4%	53.8%	55.6%	51.8%	38.4%
2008	9.5%	24.4%	29.2%	30.8%	37.9%	48.8%	52.8%	55.4%	53.2%	40.3%
2009	8.7%	23.4%	28.6%	30.2%	36.5%	46.2%	50.5%	53.5%	52.8%	39.9%
2010	10.7%	24.1%	29.0%	31.5%	37.2%	47.8%	51.5%	53.3%	51.9%	39.6%
Pre-SB 407	8.9%	24.4%	28.3%	30.4%	35.9%	43.8%	53.5%	55.5%	54.2%	44.2%
Post-SB 407	10.3%	24.3%	28.7%	31.2%	37.6%	48.2%	52.6%	54.5%	52.2%	38.8%

Figure 6 shows the annual proportions.

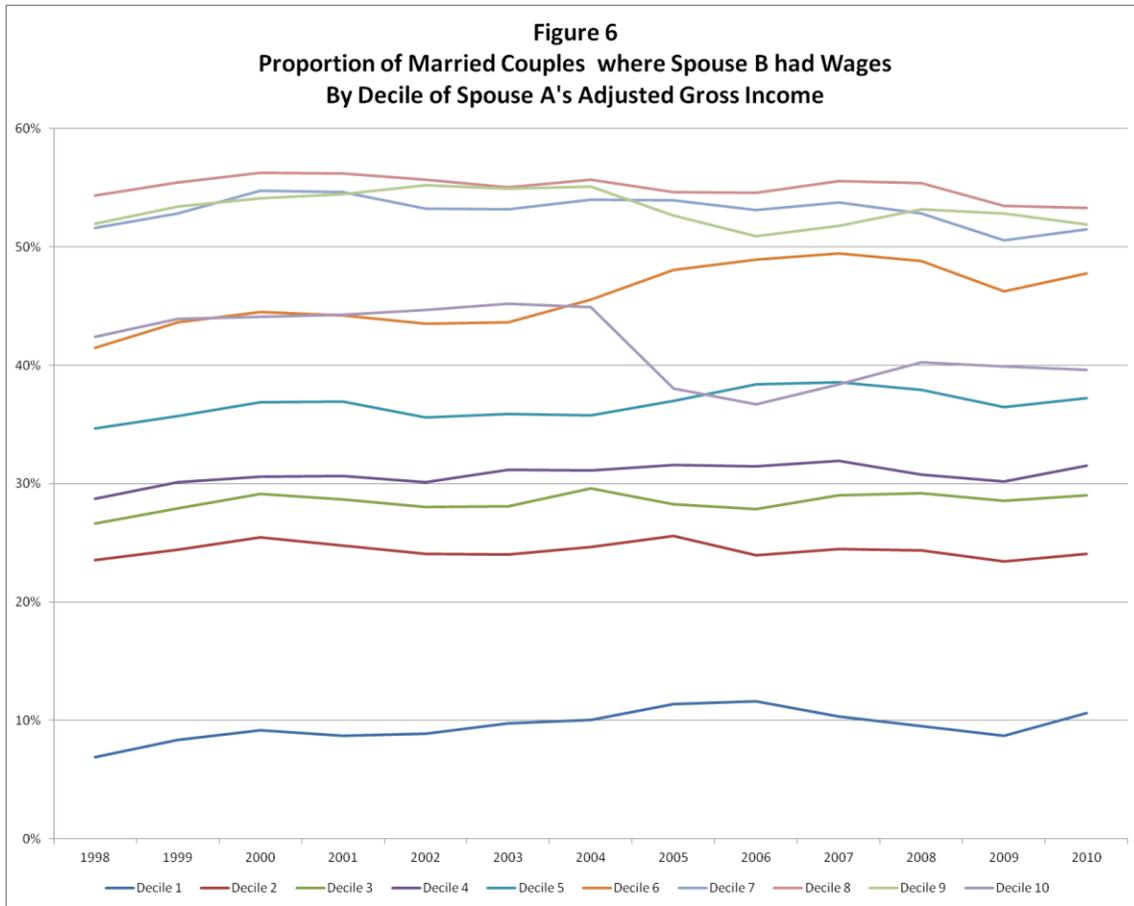


Table 2 shows the results of chi-squared tests for equality of the pre-SB 407 and post-SB 407 proportions for each decile group. The first two columns show the proportions of returns in each decile with wages reported in Column B, and the third column shows the changes in these proportions from the pre-SB 407 period to the post-SB 407 period. The chi-squared statistic is a measure of the likelihood that the pre-SB 407 and post-SB 407 proportions really are the same. The larger the statistic, the smaller the likelihood. The P value in the right-hand column is the probability of getting a chi-squared statistic at least as large as the one observed if the two proportions are equal.

**Table 2**  
**Tests for Equality of Proportion of Married Couples with Wage and Salary Income in Column B**  
**Before and After Implementation of SB 407**

Decile of Column A AGI	Proportion of Returns with Column B Wages		Change	Chi Sq	P
	Pre SB 407	Post SB 407			
1	8.9%	10.3%	1.4%	73.86	< 0.00005
2	24.4%	24.3%	-0.1%	0.21	0.6483
3	28.3%	28.7%	0.4%	2.18	0.1394
4	30.4%	31.2%	0.9%	15.22	< 0.00005
5	35.9%	37.6%	1.7%	61.82	< 0.00005
6	43.8%	48.2%	4.4%	476.79	< 0.00005
7	53.5%	52.6%	-0.8%	20.82	< 0.00005
8	55.5%	54.5%	-1.0%	37.09	< 0.00005
9	54.2%	52.2%	-2.0%	143.54	< 0.00005
10	44.2%	38.8%	-5.4%	1,228.40	< 0.00005

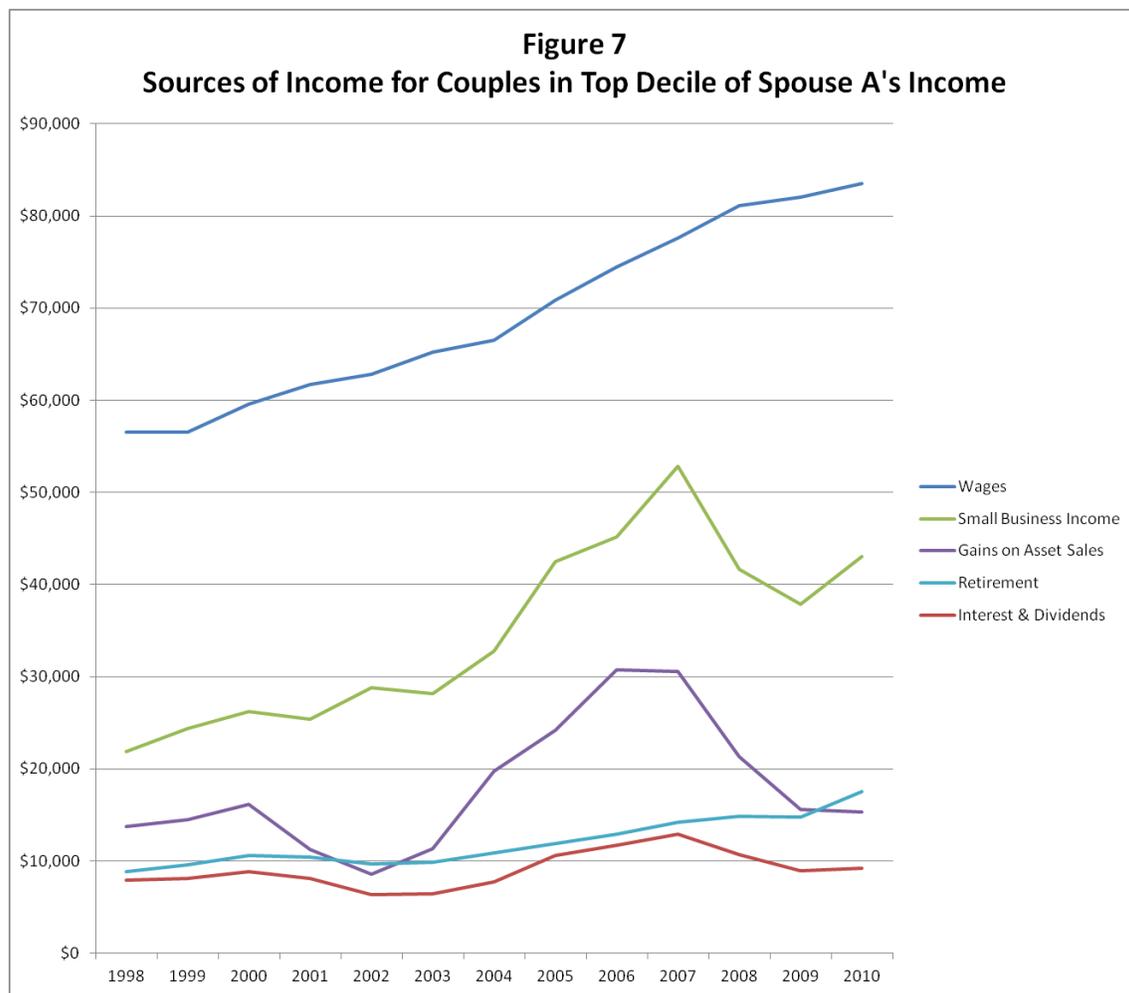
As the last column shows, the hypothesis that the proportion of returns reporting wages in Column B is the same before and after the implementation of SB 407 can be very strongly rejected for eight of the ten decile groups. However, contrary to expectations from the literature, the proportion of returns with wages in Column B *decreased* for the top four decile groups and increased or had an insignificant change for the bottom six decile groups, who were essentially unaffected by SB 407.

Why is the observed change the opposite of the change predicted by econometric studies of labor supply? There are two likely reasons, both related to the fact that econometric studies try to estimate the response of labor supply to wage changes when all else is constant.

When econometricians estimate the elasticity of labor supply, they estimate the response of labor force participation and desired hours per week to a change in the after-tax wage rate. The effect of an increase in the after tax wage can be decomposed into two effects. The first is due to the change in the tradeoff between the income from an hour of work and the value of an hour of leisure. Economists call this the substitution effect, and it leads to more people wanting to work more hours at higher after-tax wages. The second effect is due to the fact that a higher after-tax wage increases the disposable income earned from working any given number of hours. With higher disposable incomes, people want to buy more of most goods, including leisure time. Economists call this the income effect, and it leads to people wanting to work less at higher after-tax wages. Econometric estimates generally find that the substitution effect of a change in after-tax wages is slightly stronger than the income effect for first earners in a family and much stronger than the income effect for second earners.

However, SB 407 cut taxes on all income, not just on labor income, and instituted preferential treatment for capital gains. For higher-income households, non-wage income is a significant portion of total income, and is over half of income for households in the top decile group. For a household with half of its income from non-labor sources, the income effect of an income tax cut will be about twice the income effect from the increase in the after-tax wage, and may be larger than the substitution effect.

From 2004 through 2007 higher-income households in Montana experienced a surge in non-labor income. Figure 7 shows average income in five categories for couples in the top decile group of Spouse A's income. Income from small business and sales of assets increased significantly from 2004 through 2007 and then decreased.<sup>10</sup> This is the opposite of the movements in the proportion of returns with wages in Column B.

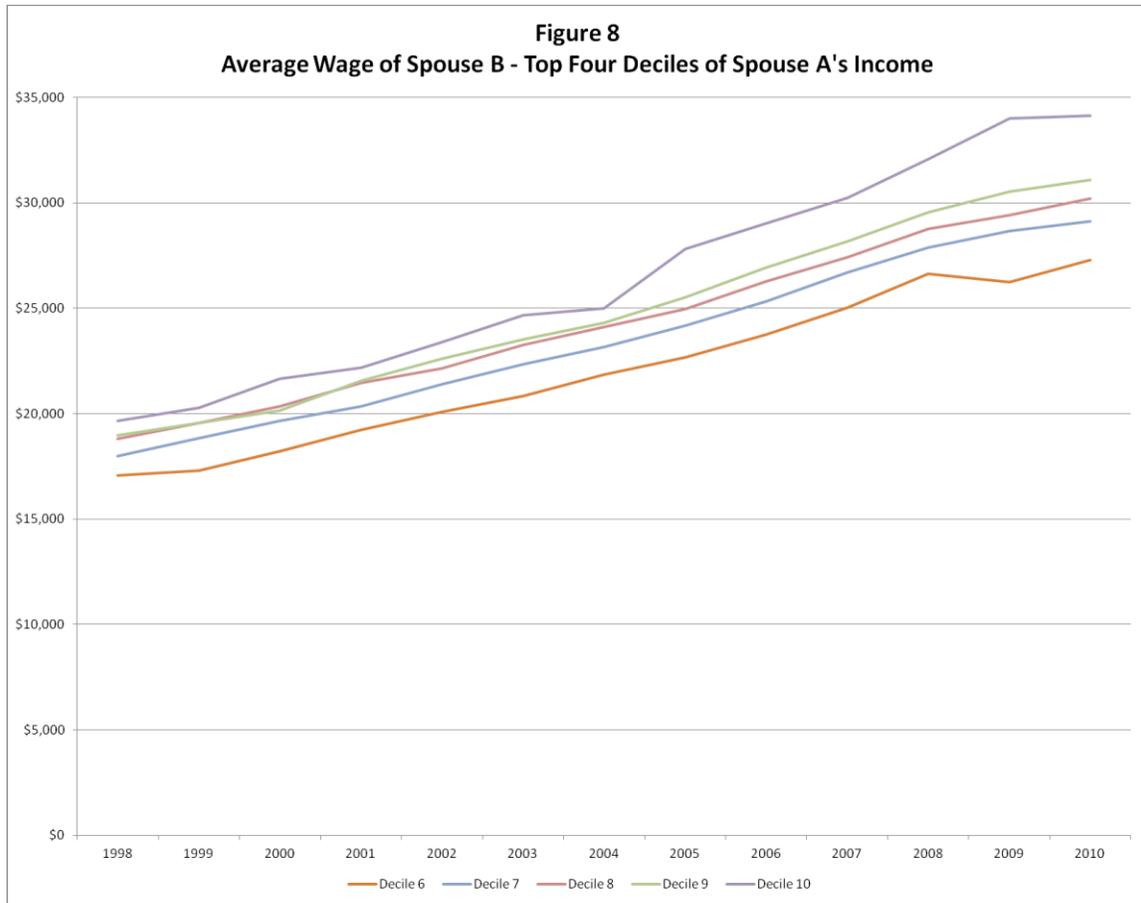


In the period when any labor supply effect of SB 407 would have been occurring, general economic trends significantly increased non-labor income of high income households in

<sup>10</sup> Income from small business is the sum of lines 12, 17, 18, and 21 on IRS Form 1040, and gains from asset sales is the sum of lines 13 and 14.

Montana, which would have caused them to want to consume more leisure time, i.e. work less.

A third possible reason for a decrease in second earners in high-income households appears to be ruled out by the evidence. The number of second earners could have decreased either because the supply of second earners wanting to work decreased or because the demand for their labor decreased. In the first case, the number working would have decreased while their average wages increased. In the second case, both the number working and the average wage would have increased. As Figure 8 shows, average wages for Column B spouses in the top four decile groups continued to grow throughout this period, and in fact jumped for the top decile in 2005. Thus, it appears much more likely that the decrease in second earners among higher-income couples was due to a decrease in supply than a decrease in demand.



*Income Tax Returns – Self Financing and Entrepreneurial Activity*

If SB 407 increased entrepreneurial activity in Montana, the proportion of income tax returns with income or loss from Schedules C and E should be higher after SB 407 went

into effect than before. If SB 407 increased self-financing of business activity by high-income taxpayers, the increase in the proportion of returns with income or loss from Schedules C and E should be larger for high-income returns.

Tables 3a through 3d show proportions of returns with income or losses on Schedules C and E before and after the implementation of SB 407, for deciles of Column A income and for all returns. Table 3a shows the proportion for single taxpayers, Table 3b shows the proportion of married couples reporting Schedule C or E income or losses in Column A, Table 3c shows the proportion of married couples reporting Schedule C or E income or losses in Column B, and Table 3d shows the proportion of married couples reporting Schedule C or E income or losses in one or both columns. The tables also show the change in proportions from the pre-SB 407 years to the post-SB 407 years and the results of a chi-squared test of statistical significance for these changes. Changes that are in the predicted direction are shaded, and tests that indicate statistically significant changes in the predicted direction also are shaded.

**Table 3a**  
**Tests for Equality of Proportion of Small Business Income**  
**Before and After Implementation of SB 407**  
**Single Taxpayers**

Decile of Column A AGI	Proportion of Returns with Schedule C or E Income		Change	Chi Sq	P
	Pre SB 407	Post SB 407			
1	16.0%	17.6%	1.6%	189.22	0.0000
2	11.5%	12.2%	0.8%	60.26	0.0000
3	15.5%	15.5%	0.0%	0.06	0.8049
4	16.4%	15.7%	-0.7%	29.50	0.0000
5	15.9%	14.5%	-1.4%	124.71	0.0000
6	17.1%	15.5%	-1.7%	143.79	0.0000
7	19.2%	18.5%	-0.7%	16.29	0.0001
8	22.8%	22.1%	-0.7%	13.78	0.0002
9	29.1%	28.2%	-0.9%	14.54	0.0001
10	48.7%	48.8%	0.2%	0.30	0.5856
All	18.0%	17.9%	-0.2%	11.07	0.0009

**Table 3b**  
**Tests for Equality of Proportion of Small Business Income**  
**Before and After Implementation of SB 407**  
**Married Taxpayers, Column A**

Decile of Column A AGI	Proportion of Returns with Schedule C or E Income			Chi Sq	P
	Pre SB 407	Post SB 407	Change		
1	50.5%	47.3%	-3.2%	130.20	0.0000
2	42.2%	41.0%	-1.1%	11.46	0.0007
3	43.9%	42.7%	-1.3%	21.53	0.0000
4	44.3%	42.6%	-1.8%	56.47	0.0000
5	41.6%	40.0%	-1.5%	49.99	0.0000
6	39.3%	37.9%	-1.4%	50.37	0.0000
7	37.0%	36.2%	-0.8%	20.61	0.0000
8	35.7%	35.8%	0.2%	1.11	0.2930
9	37.7%	38.0%	0.3%	4.30	0.0380
10	53.8%	55.3%	1.5%	89.03	0.0000
All	42.2%	41.9%	-0.3%	23.58	0.0000

**Table 3c**  
**Tests for Equality of Proportion of Small Business Income**  
**Before and After Implementation of SB 407**  
**Married Taxpayers, Column B**

Decile of Column A AGI	Proportion of Returns with Schedule C or E Income			Chi Sq	P
	Pre SB 407	Post SB 407	Change		
1	3.7%	3.8%	0.1%	1.07	0.3015
2	8.4%	8.3%	-0.1%	0.27	0.6061
3	10.9%	10.4%	-0.5%	8.74	0.0031
4	11.7%	11.4%	-0.3%	5.01	0.0253
5	12.6%	12.5%	-0.1%	0.19	0.6670
6	14.0%	14.9%	0.9%	43.69	0.0000
7	16.1%	16.3%	0.2%	2.57	0.1090
8	17.4%	18.1%	0.7%	29.65	0.0000
9	19.4%	18.8%	-0.6%	19.00	0.0000
10	23.7%	20.7%	-3.0%	523.72	0.0000
All	16.0%	15.6%	-0.4%	84.52	0.0000

**Table 3d**  
**Tests for Equality of Proportion of Small Business Income**  
**Before and After Implementation of SB 407**  
**Married Taxpayers, Combined**

Decile of Column A AGI	Proportion of Returns with Schedule C or E Income		Change	Chi Sq	P
	Pre SB 407	Post SB 407			
1	51.6%	48.8%	-2.9%	105.00	0.0000
2	44.3%	43.4%	-0.9%	7.64	0.0057
3	46.3%	45.2%	-1.1%	17.09	0.0000
4	47.0%	45.3%	-1.7%	52.67	0.0000
5	44.8%	43.4%	-1.4%	40.09	0.0000
6	43.5%	42.7%	-0.8%	14.03	0.0002
7	42.7%	42.1%	-0.6%	10.54	0.0012
8	42.0%	42.6%	0.6%	11.25	0.0008
9	44.2%	44.5%	0.2%	2.02	0.1548
10	58.5%	59.0%	0.5%	10.56	0.0012
All	46.8%	46.5%	-0.3%	23.07	0.0000

Overall, the proportion of returns with small business income or losses is lower after the implementation of SB 407 than before. This is true for the population as a whole and for most of the subpopulations defined by income and marital status. Thus, if SB 407 increased entrepreneurial activity in Montana, the effect was small and was overshadowed by other changes occurring at the same time.

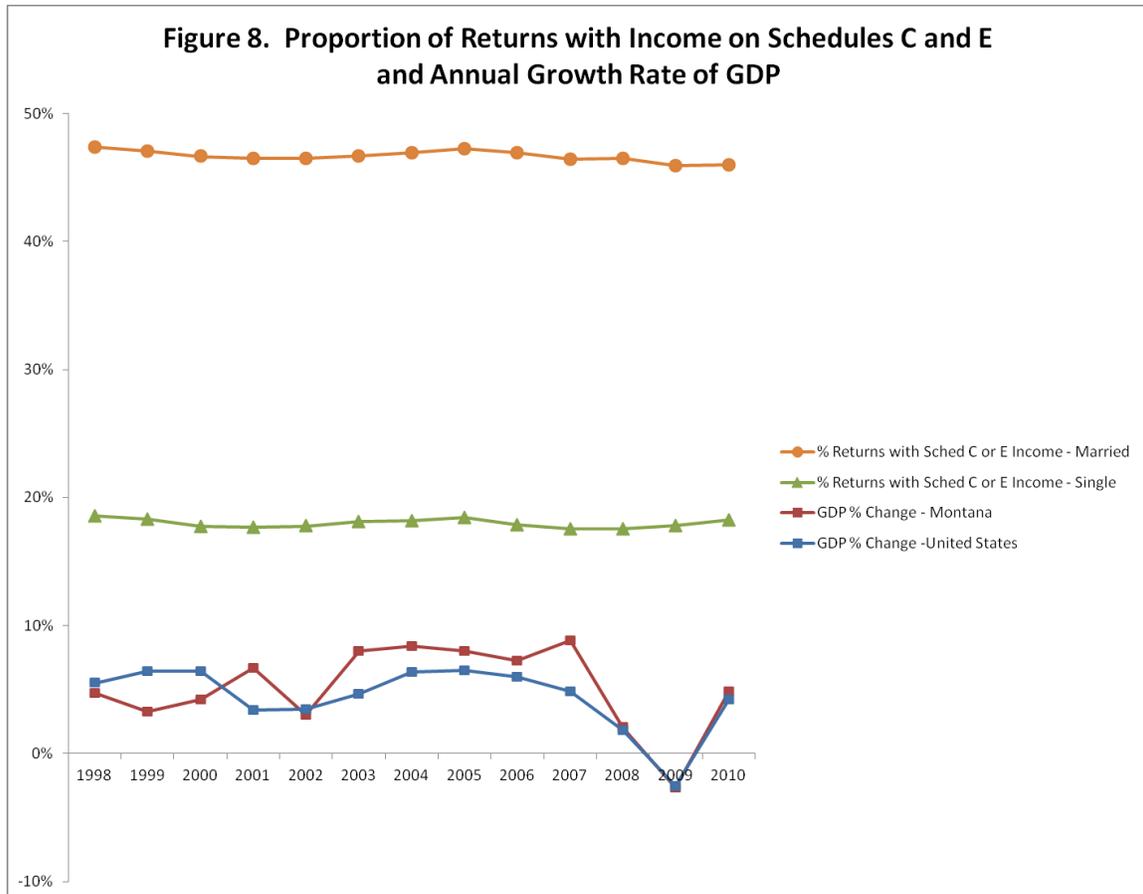
Figure 8 illustrates two of the forces that may have overshadowed any entrepreneurial activity effect from SB 407. It shows the proportion of returns with small business income for married couples and single taxpayers, and it shows the annual percentage change in gross domestic product (GDP) for Montana and for the United States. Years of high GDP growth occur in the growth phases of business cycles, and drops in GDP growth indicate the recessions of 2001 - 2002 and 2008 – 2009.

The proportions of returns with small business income or losses appear to follow a pattern related to business cycles and to have a general slight downward trend. The proportions of returns with small business income or losses is lowest during or just before recession years and is highest during the growth phase of business cycles but begins dropping before recession years. It appears that, at least in this period, the proportion of returns with small business income or losses leads the general business cycle rather than following it.

SB 407 went into effect in the middle of the expansion phase of a business cycle, when the proportion of returns with small business income or losses is highest. The years since have included the final years of an expansion, a deep recession, and the beginning of a recover. These are periods when the proportion of returns with small business income or

loss is slightly lower. It appears that any increase in entrepreneurship that might have occurred because of SB 407 is smaller than the normal small fluctuations over the course of a business cycle.

The choice between running a business and being an employee depends on their relative returns. Someone may choose to be an entrepreneur because they see high potential reward from running their own business or because they see relatively low rewards from being an employee. The Montana GDP growth rate was lower than the national growth rate four of the five years from 1998 through 2002 but was higher seven of the eight years from 2003 through 2010. From 2001 to 2010, average wages increased by 37% in Montana but only by 29% nationwide. Thus, it appears that one of the forces overshadowing any hypothetical encouragement to entrepreneurship from SB 407 was the increased rewards from being an employee offered by a generally improving state economy.



The proportion of returns with income or losses from small business is higher after the implementation of SB 407 for both married couples and single taxpayers in the top decile of Column A income. This is consistent with an increase in the self-financing of businesses by high income taxpayers. Interestingly, the increase for married taxpayers

reflects a decrease in the proportion reporting small business income or losses in Column B and a larger increase in the proportion for Column A.

*Withholding Returns – Self Financing and Inter-Jurisdictional Competition*

If SB 407 increased self-financing of businesses by high-income individuals, if the businesses with this increased self-financing were successful, and if their success increased the demand for labor, payroll at pass-through entities and sole-proprietor businesses with high-income owners should have grown faster than payroll of other entity types.

If SB 407 made locating in Montana more attractive for unincorporated businesses but not for C-corporations, payroll at C-corporations should have grown more slowly than payroll of other types of business entities.

Table 4 shows the number of withholding returns and payroll by entity type for 2006 through 2010. The right-hand column shows the percent change from 2006 through 2010.<sup>11</sup>

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<sup>11</sup> See the appendix for how withholding returns were classified. Non-employers are entities that withhold tax on non-wage payments. These include pension funds and trusts managed by financial institutions. Withholding returns do not distinguish between types of payments, so it was impossible to distinguish, for example, a financial institution with employees in the state from one making disbursements from a trust.

**Table 4**  
**Number of Withholding Returns and Payroll by Entity Type**

	Number of Withholding Returns					% Change 2006 - 2010
	2006	2007	2008	2009	2010	
Corporations and Non-Employers*	8,883	8,567	8,623	8,982	8,933	0.6%
Non-Profits & Governments	2,364	2,390	2,492	2,519	2,483	5.0%
Pass-Through and Disregarded Entities and Households						
With a High-Income Owner	578	583	592	578	562	-2.8%
With No High-Income Owner	17,769	19,108	19,783	19,603	18,265	2.8%
Unclassified	<u>9,195</u>	<u>8,926</u>	<u>8,942</u>	<u>8,763</u>	<u>8,839</u>	-3.9%
<b>Total</b>	<b>38,789</b>	<b>39,574</b>	<b>40,432</b>	<b>40,445</b>	<b>39,082</b>	<b>0.8%</b>
Unincorporated Business Total	27,542	28,617	29,317	28,944	27,666	0.5%

	Payroll Reported on Withholding Returns (\$ million)					% Change 2006 - 2010
	2006	2007	2008	2009	2010	
Corporations and Non-Employers*	\$4,819.4	\$5,431.1	\$5,406.2	\$5,436.1	\$5,201.7	7.9%
Non-Profits & Governments	\$2,330.1	\$2,715.9	\$2,925.9	\$3,051.9	\$2,911.3	24.9%
Pass-Through and Disregarded Entities and Households						
With a High-Income Owner	\$583.7	\$643.0	\$648.8	\$609.2	\$597.4	2.3%
With No High-Income Owner	\$2,808.6	\$3,188.9	\$3,288.7	\$3,039.9	\$3,597.9	28.1%
Unclassified	<u>\$1,566.6</u>	<u>\$1,691.6</u>	<u>\$1,823.9</u>	<u>\$1,829.9</u>	<u>\$1,934.4</u>	23.5%
<b>Total</b>	<b>\$12,108.5</b>	<b>\$13,670.6</b>	<b>\$14,093.6</b>	<b>\$13,967.0</b>	<b>\$14,242.7</b>	<b>17.6%</b>
Unincorporated Business Total	4,959	5,524	5,761	5,479	6,130	23.6%

Contrary to the prediction for the self-financing effect, payroll growth was slowest for small businesses with a high-income owner. Payroll growth for unincorporated businesses was faster than for C-corporations, consistent with an effect on inter-jurisdictional competition.

With no data from before SB-407 went into effect, it is impossible to do a before-and-after comparison. However, it is possible to compare Montana's experience with national trends. Table 5 shows national wage and salary data for 2006 through 2010. Nationally, wage and salary growth for C-corporations was much faster than in Montana, and the difference between C-corporations and unincorporated businesses was much smaller.

**Table 5**  
**US Wage and Salary Accruals by Type of Payer**  
**(\$ billion)**

	2006	2007	2008	2009	2010	% Change 2006 - 2010
Corporations	\$1,656.7	\$1,746.0	\$1,838.2	\$1,865.3	\$1,958.4	18.2%
Non-Profits & Governments	\$611.1	\$654.5	\$710.1	\$755.1	\$795.4	30.2%
Pass-Through and Disregarded Entities and Households	\$172.9	\$183.9	\$195.3	\$197.0	\$207.0	19.7%

Source: US Department of Commerce, Bureau of Economic Analysis

There are other differences between Montana and the US as a whole, which could explain the difference in payroll growth rates. For example, corporations account for two-thirds of national payroll but less than two-fifths of Montana payroll. However, the difference is consistent with an improvement in Montana's inter-jurisdictional competitiveness.

*Withholding Returns – Entrepreneurial Activity Effect*

If SB 407 increased entrepreneurial activity and if an increase in entrepreneurial activity resulted in increased employment, a disproportionate share of payroll growth from 2006 to 2010 should have been at new firms, and particularly at new unincorporated firms.

The first row of Table 6 shows changes from one year to the next in payroll on withholding returns of entities that filed a return in the first year in the heading for each column but not in the second year. The second row shows changes for entities that did not file a return in the first year and filed their first return in the second. The third row shows changes for entities that filed a return in both the first and second years in the heading for each column. The two right-hand columns show the cumulative change from 2006 to 2010 in each row and the proportion each row represents of the total change from 2006 to 2010.

**Table 6**  
**Change in Payroll Reported on Withholding Returns**  
**(\$ million)**

	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	Change 2006 - % of 2006 - 2010	
					2010	total Change
Due to Exit of Existing Firms	-\$367.4	-\$592.3	-\$426.7	-\$1,003.8	-\$2,390.2	-112.0%
Due to Entry of New Firms	\$931.2	\$618.9	\$630.1	\$398.6	\$2,578.8	120.8%
Due to Change by Continuing Firms	<u>\$998.3</u>	<u>\$396.4</u>	<u>-\$330.0</u>	<u>\$880.9</u>	<u>\$1,945.6</u>	<u>91.2%</u>
Total	\$1,562.1	\$423.0	-\$126.6	\$275.7	\$2,134.2	100.0%

As would be predicted if SB 407 increased entrepreneurial activity, new entities accounted for more of the growth of payroll from 2006 to 2010 than existing entities. However, with no pre-SB 407 data, it is impossible to know if new entities' share of payroll growth increased after SB 407 went into effect.

Table 7 shows the change in payroll from new entities by entity type, with a row at the bottom showing the total for small business entities.

**Table 7**  
**Payroll Reported on Withholding Returns of New Entities**  
**(\$ million)**

	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	Change 2006 - % of 2006 - 2010	
					2010	total Change
Corporations and Non-Employers*	\$380.2	\$275.2	\$398.5	\$157.5	\$1,211.3	47.0%
Non-Profits & Governments	\$268.9	\$62.5	\$20.7	\$18.4	\$370.5	14.4%
Pass-Through and Disregarded Entities and Households						
With a High-Income Owner	\$16.0	\$10.6	\$4.3	\$7.0	\$37.9	1.5%
With No High-Income Owner	\$167.6	\$168.5	\$110.3	\$108.7	\$555.2	21.5%
Unclassified	<u>\$98.6</u>	<u>\$102.1</u>	<u>\$96.2</u>	<u>\$106.9</u>	<u>\$403.9</u>	<u>15.7%</u>
Total	\$931.2	\$618.9	\$630.1	\$398.6	\$2,578.8	100.0%
Small Business Total	\$282.2	\$281.3	\$210.9	\$222.7	\$997.0	38.7%

Payroll growth at new corporate entities was larger than payroll growth at new non-corporate businesses, which weakens that case for an increase in entrepreneurial activity.

## 6. Conclusions

Section 2 identified ways that SB 407 might have affected employment and Section 3 identified how those effects might show up in the data. They are restated here as questions, followed by the answers from the data:

- Labor Supply Effect: Did the proportion of income tax returns from higher-income married couples reporting wage and salary income for the second spouse increase? *No, it decreased.*
- Self Financing Effect:
  - Did the proportion of high-income tax returns with income or losses on Schedules C and E increase? *Yes.*
  - Did pass-through entities and sole-proprietor businesses with at least one high-income owner have faster payroll growth than those with no high-income owner? *No, this group had the slowest payroll growth.*
- Entrepreneurial Effect:
  - Did the proportion of all income tax returns with income or losses on Schedules C and E increase? *No, it decreased.*
  - Did new firms account for more payroll growth than established firms? *Yes, but more than half of the growth from new firms was from C-corporations, which are more likely to be established firms expanding into the state and which were not affected by SB 407.*
- Inter-Jurisdictional Competition Effect: Did pass-through entities and sole-proprietor businesses have faster payroll growth than C-corporations? *Yes, and the difference is larger than at the national level. However, with no pre-SB 407 payroll data for Montana, it is impossible to say whether this represents a change from pre-SB 407 trends.*

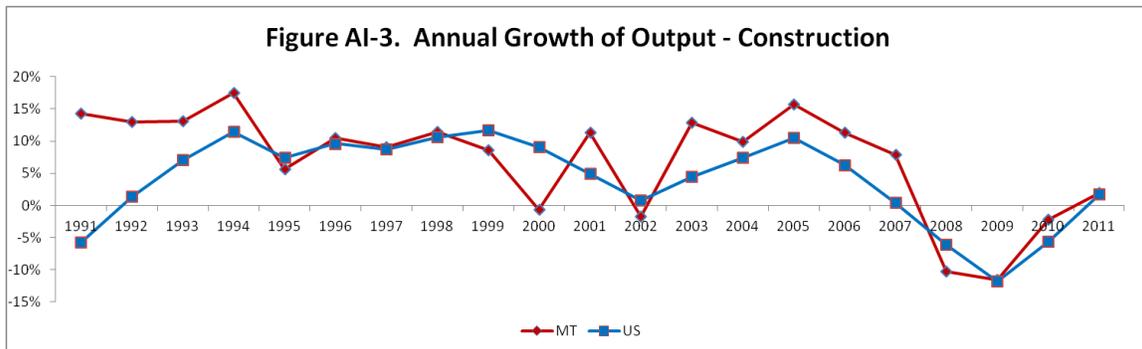
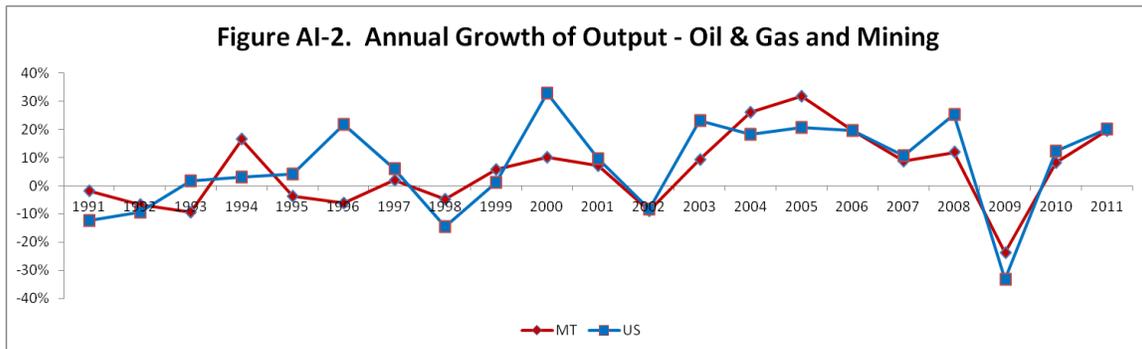
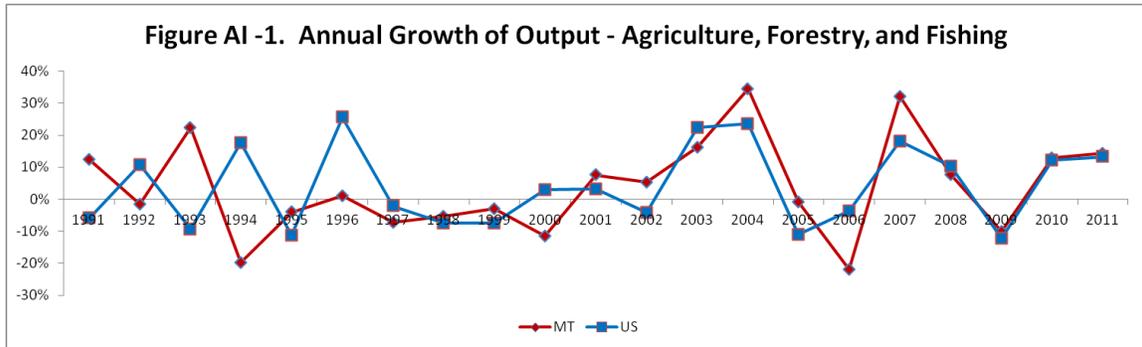
Data from income tax returns show one employment-related effect of SB 407 – reduced labor supply by the spouses of high-income individuals, though this effect could also be due to the increase in high-income households’ non-labor income after 2004. This is the opposite of the hypothesized effect.

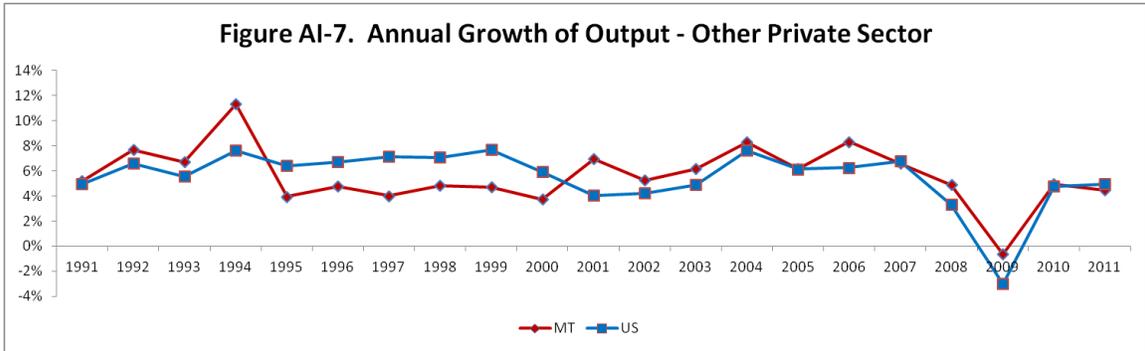
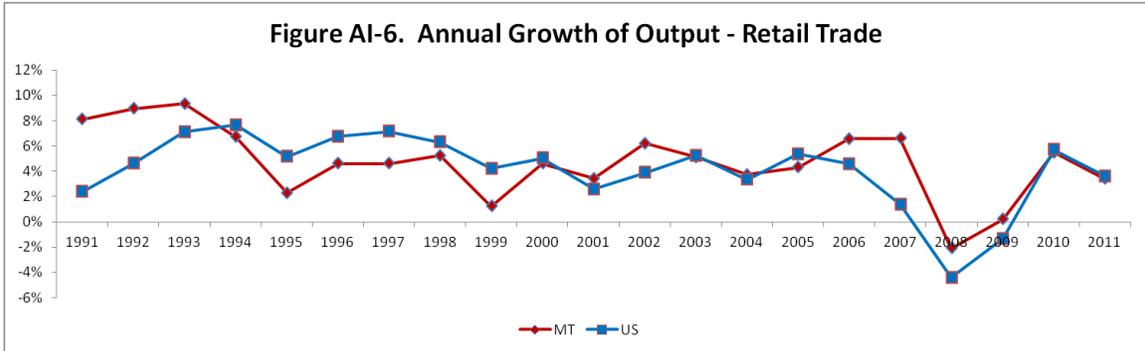
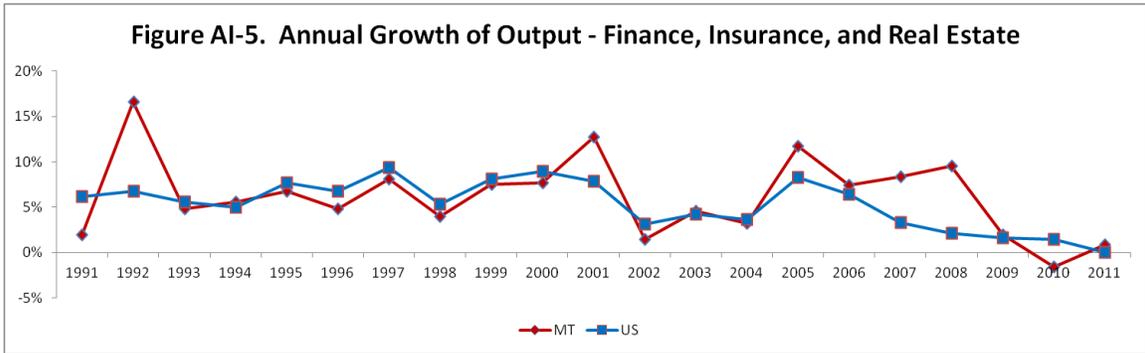
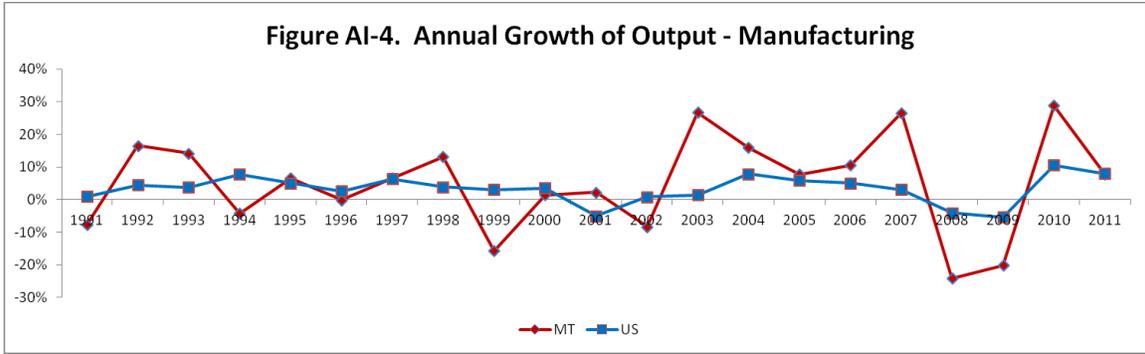
Evidence from income tax and withholding returns for the hypothesized effects on labor demand is mixed. For the self-financing and entrepreneurial effects, evidence from income tax returns and withholding returns point in opposite directions. The evidence from withholding returns is consistent with the inter-jurisdictional competition effect. However, with no ability to do a before-and-after comparison, it is impossible to say whether SB 407 changed the rate at which non-corporate businesses locate in Montana.

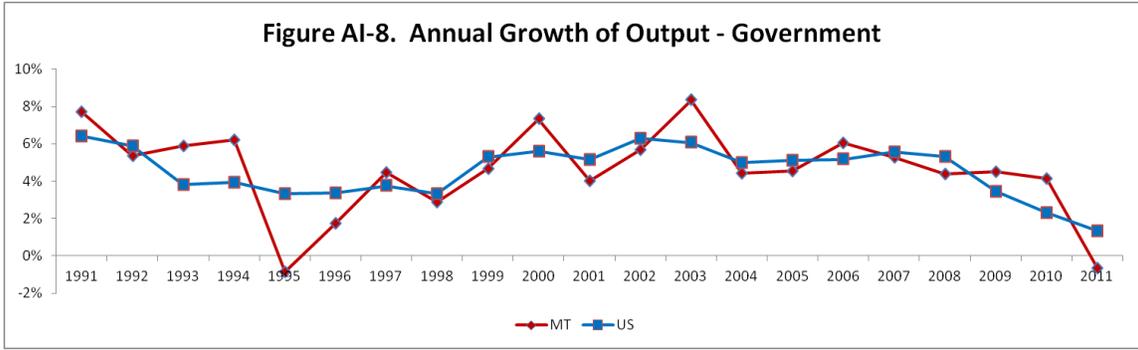
The Montana economy grew faster after SB 407 than in the previous decade, but the acceleration started two years before the tax cut went into effect and appears to be driven primarily by forces unaffected by Montana taxes – higher agricultural commodity prices, higher oil prices that made it profitable to develop new fields, and the nation-wide housing bubble.

## Appendix I – Graphs of GDP Growth

The charts in this appendix show state and national growth of gross domestic product with the economy divided into eight broad sectors.







## **Appendix II – Withholding Return Correction and Classification**

Employers and other payers who withhold income tax from wages and other payments are required to file an annual return which shows the total amount of taxes withheld and the total payroll. The Department of Revenue's current data processing system has complete annual returns for the years 2006 through 2010.

As part of normal processing, the annual withholding amounts recorded on returns are checked against payments during the year, and any discrepancies are corrected. The payroll entries are not verified as part of normal processing. Before correction, there were large year-to-year changes in payroll reported on withholding returns that were not matched by changes in wage and salary income reported on income tax returns. After correction of individual returns, the two series track much more closely.

For this study, returns that appeared to be inconsistent with the same employer's returns for other years or where the ratio of withholding to payroll was outside the expected range were selected for further examination. Where a likely error could be identified, the data was changed. The most common sources of suspected errors were extra digits, missing digits, and the amount of withholding being entered on the payroll line. For example, suppose a firm reported withholding of \$4,000 every year and reported payroll of \$100,000 every year but one. If reported payroll for that year was \$1,000,000, it was assumed that an extra digit had been recorded. If payroll for that year was \$10,000, it was assumed that a digit had been left out. If payroll for that year was \$4,000, it was assumed that data was recorded on the wrong line and that the ratio of withholding to payroll for the suspect year would be consistent with the ratios on the employer's other returns. In all of these cases, payroll for the suspect year would have been changed to \$100,000. When an employer's returns were consistent across years, no changes were made even if the individual years' returns were suspect. For example, if an employer consistently had either an unusually high or unusually low ratio of withholding to payroll, the returns were assumed to be correct. On the other hand, a few returns were identified as having likely errors, but could not be corrected with any confidence.

Withholding returns were put in four categories: corporations and non-employers, non-profits and government entities, pass-through entities and sole-proprietor businesses with at least one high income owner, and pass-through entities and sole-proprietor businesses with no high income owner. These categories were chosen to enable comparisons required to look for effects of SB 407 on labor demand: unincorporated businesses with high-income owners v. other entities to look for a self-financing effect, new unincorporated businesses v. other new entities to look for an entrepreneurship effect, and unincorporated businesses v. C-corporations to look for a tax competition effect.

When the entity with a withholding account also files either corporation license tax returns or pass-through entity returns, its withholding account and income tax accounts are linked in the department's data processing system and can easily be matched. About 42,000 out of about 58,000 accounts were matched this way.

Pass-through entity returns include a list of owners, with their social security numbers, so withholding accounts for pass-through entities were matched to the owners' income tax returns and entities with at least one owner who had income of at least \$250,000 in 2005 dollars in at least one of the years 2003 through 2005 were flagged.

Entities that might have a withholding account but did not file either a corporation license tax return or a pass-through return include sole-proprietor businesses; private non-profits, including churches; government entities, including school districts and the university system; insurance companies; out-of-state pension funds and other entities paying income to Montana residents but with no business presence in the state; and corporate subsidiaries and affiliates that are part of a group that files a single combined corporate return.

Withholding returns that did not match either a corporate or pass-through account were examined by hand. Based on the name of the entity, a little more than half were classified as a non-profit, an individual, a business with an individual's name as part of the business name, or other. The other category included corporate affiliates, banks, insurance companies, pension funds, and payroll companies. This other category was then combined with the identified corporations in a single category. Accounts that were classified as either an individual or a business with an individual's name as part of the business name were matched with individual income tax counts based on name and address.

Table AII-1 shows the number of entities that filed at least one annual withholding return for 2006 through 2010, the number in the four categories and the number that could not be classified. The entities that could not be classified are probably primarily sole proprietor businesses that could not be matched to an individual taxpayer based on name or address.

**Table AII-1**  
**Withholding Accounts by Type of Entity**

Corporations and Non-Employers*	13,379
Non-Profits & Governments	2,905
Pass-Through and Disregarded Entities	
With a High-Income Owner	682
With No High-Income Owner	25,338
Unclassified	<u>15,762</u>
Total	58,066

\*C-Corporations, Financial Institutions, Insurance Companies, Pension Funds, Payroll Companies

## **State Income Taxes and Employment Growth Results of a Natural Experiment in Montana Executive Summary**

It is often argued in the political arena that cutting taxes will stimulate the economy and increase employment. In 2003, the Montana Legislature passed Senate Bill 407, which reduced the top individual income tax rate and provided preferential treatment for capital gains. SB 407 significantly reduced taxes for high-income individuals, had minimal effect on middle- and low-income taxpayers, and made no changes to taxation of corporations. This paper uses information from Montana income tax and withholding returns to examine whether SB 407 increased employment in Montana. It does this by comparing information before and after SB 407 went into effect and by comparing information for taxpayers who were and were not affected by SB 407.

Employment in a state can increase because there is an increase in the supply of labor – more people want to work more hours at given wages, because there is an increase in the demand for labor – employers want more people to work more hours at given wages, or because employers locate in that state rather than somewhere else. Economic theory identifies several mechanisms by which a tax cut might lead to higher labor supply, higher labor demand, or different firm location decisions. However, for some of these mechanisms, the theory makes ambiguous predictions – a tax cut affects taxpayers in ways that tend to increase employment and in ways that tend to decrease employment.

The four possible effects tested and the results are as follows.

**Labor Supply:** Theory is ambiguous, but previous empirical work suggested that second earners in high-income households might supply more labor in response to an income tax cut.

Contrary to this prediction, the proportion of second earners in households where the primary earner has high income decreased after SB 407 went into effect.

**Self-Financing of Business Expansion:** Taxpayers who have higher after-tax incomes because of a tax cut may use some of the additional resources to help finance new or expanded businesses. Theory is ambiguous, but new business formation may lead to increased employment.

The proportion of high-income households reporting income or losses from a sole-proprietor business or a pass-through entity was higher after SB 407 went into effect, but small businesses with a high-income owner had lower payroll growth than other types of employers.

**Increased Entrepreneurship:** Theory is ambiguous. A tax cut may induce entrepreneurs to devote more or less time to their businesses, and it may make running a business more or less attractive compared to working for someone else. Increased entrepreneurial activity may lead to increased employment.

The proportion of tax returns reporting income or losses from a sole-proprietor business or a pass-through entity was lower after SB 407 went into effect. More than half of payroll growth since 2005 occurred in new firms. However, more than half of the growth at new firms was at C-corporations, which were not affected by SB 407. Payroll data is not available to do a before-and-after comparison.

Business Location: Theory and previous empirical work indicate that cost differences affect businesses' location decisions and that tax differences can sometimes influence these decisions, with a business choosing a location partly because of its lower taxes.

After 2005, pass-through entities and sole-proprietor businesses, which were affected by SB 407 had faster payroll growth than C-corporations, which were not affected. Payroll data from before 2005 is not available to do a before-and-after comparison.

SB 407 went into effect while the Montana economy was experiencing strong growth due to a combination of a national economic recovery, high agricultural and oil prices, and the nationwide housing bubble. Since 2005, the Montana economy has continued to respond strongly to outside forces, and any effect SB 407 had on the state economy appears to be smaller than the effects due to other influences.

In summary, evidence from income tax and withholding returns contradicts the idea that SB 407 increased the supply of labor and is ambiguous about whether SB 407 increased the demand for labor through increased self-financing of business expansion or increased entrepreneurship. The evidence is consistent with increased employment due to SB 407 making Montana more attractive for unincorporated businesses, but lack of payroll data from before 2005 limits what can be said.